

Application No.: 10/572628  
Docket No.: CL2244USPCT

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REMARKS

The Office Action maintained rejections of all pending claims, reiterating much of the language of the prior office action for this application. Certain calculations included with Applicants' prior remarks were apparently found confusing by the Examiner. Accordingly, in an effort to expedite consideration of this application, Applicants provide the following additional remarks.

I. The concept of atom ratio in multiple component compositions.

Applicant submits that the ratio of zinc atoms to chromium atoms in compositions comprising both  $\text{ZnCr}_2\text{O}_4$  and  $\text{Cr}_2\text{O}_3$  can vary. For the purposes of a simple illustration of this point only, one may compare (1) a composition of  $\text{ZnCr}_2\text{O}_4$  with essentially no  $\text{Cr}_2\text{O}_3$ , (2) a composition of  $\text{ZnCr}_2\text{O}_4$  and  $\text{Cr}_2\text{O}_3$  in a 1:1 mole ratio, (3) a composition of  $\text{ZnCr}_2\text{O}_4$  and  $\text{Cr}_2\text{O}_3$  in a 10:1 mole ratio, and (4) a composition of  $\text{Cr}_2\text{O}_3$  with essentially no  $\text{ZnCr}_2\text{O}_4$ . Applicant notes that the ratio of zinc atoms to chromium atoms in composition (1) is essentially 1:2; the ratio of zinc atoms to chromium atoms in composition (2) is 1:4; the ratio of zinc atoms to chromium atoms in composition (3) is 5:11; and the ratio of zinc atoms to chromium atoms in composition (4) is essentially zero.

In terms of a 1kg sample, composition (1) would contain essentially 1000g of  $\text{ZnCr}_2\text{O}_4$  (i.e., about 4.3 moles), composition (2) would contain about 606g of  $\text{ZnCr}_2\text{O}_4$  and about 394g of  $\text{Cr}_2\text{O}_3$  (i.e., about 2.6 moles of each), composition (3) would contain about 939g  $\text{ZnCr}_2\text{O}_4$  and about 61g of  $\text{Cr}_2\text{O}_3$  (i.e., about 4.0 moles of  $\text{ZnCr}_2\text{O}_4$  and about 0.4 moles of  $\text{Cr}_2\text{O}_3$ ); and composition (4) would contain essentially 1000g of  $\text{Cr}_2\text{O}_3$  (i.e., about 6.6 moles). For composition (3), for example, the  $\text{ZnCr}_2\text{O}_4$  would contain about 91% of the chromium atoms in the composition and would contain about 26 weight percent zinc.

II. West German Patent No. 23 58 254.

In maintaining anticipation, the Examiner has evidently relied on the second (last) sentence of the paragraph beginning "The subject of this invention..." near the top of the second page of the "full translation", which appears to correspond to the fifth paragraph under the heading "Description in the "machine translation". This sentence relates to adding 5-15 weight percent chromium (III) oxide to "the zinc chromite catalyst". Applicant notes however, that this sentence supplements the prior sentence in the paragraph which recites *inter alia* weight percent ranges for certain dopants in the composition and a molar ratio range applicable to the composition.

The Office Action maintained with regard to the recitation of atom percent chromium and atom percent zinc, that these numerical values are inherent in the material as recited; and with regard to claims 6 and 7, if the product of a product-by-process claim is the same as a

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product of the prior art, the claim is unpatentable even though the prior art product was made by a different process.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill (see, e.g., MPEP 2112 IV). Applicants note that if 5 percent by weight of  $\text{Cr}_2\text{O}_3$  were added to a composition of only  $\text{ZnCr}_2\text{O}_4$  (e.g., if 50 g of  $\text{Cr}_2\text{O}_3$  were added to 1000g of  $\text{ZnCr}_2\text{O}_4$ ) this mixture would have a mole ratio of  $\text{ZnCr}_2\text{O}_4$ :  $\text{Cr}_2\text{O}_3$  of about 13.1:1 and a zinc content of about 27% by weight; and the  $\text{ZnCr}_2\text{O}_4$  would contain about 93 atom percent of the chromium in the composition. Applicants further note that if 15 percent by weight of  $\text{Cr}_2\text{O}_3$  were added to a composition of only  $\text{ZnCr}_2\text{O}_4$  (e.g., if 150 g of  $\text{Cr}_2\text{O}_3$  were added to 1000g of  $\text{ZnCr}_2\text{O}_4$ ) this mixture would have a mole ratio of  $\text{ZnCr}_2\text{O}_4$ :  $\text{Cr}_2\text{O}_3$  of about 4.4:1 and a zinc content of about 24% by weight; and the  $\text{ZnCr}_2\text{O}_4$  would contain about 81 atom percent of the chromium in the composition. Applicants submit that these compositions would clearly not anticipate the compositions of Claim 1 where inter alia the  $\text{ZnCr}_2\text{O}_4$  contains between about 10 atom percent and 67 atom percent of the chromium in the composition.

Applicants submit that analysis of the compositions referenced in the passage evidently relied on by the Examiner can be more complex. For example, there are dopants and a molar ratio range that can enter into consideration. The Examiner is respectfully referred again to Applicants' earlier Amendment for additional comments on this; and the Examiner may wish to make a separate analysis. In any event, Applicants note that no composition of Claim 1 has actually been identified that necessarily flows from the teachings of the sentence from West German Patent No. 23 58 254 evidently relied on by the Examiner.

Moreover, Applicants submit that it is particularly significant in connection with the anticipation rejection that the Examiner has identified no such composition. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. (see, e.g., MPEP 2112 IV). As illustrated above, the mere fact that a composition contains both  $\text{ZnCr}_2\text{O}_4$  and  $\text{Cr}_2\text{O}_3$  is not a reasonable basis to conclude that the composition necessarily has the attributes of a composition of Claim 1. Accordingly, Applicants submit that the rejection based anticipation by the indicated passage of West German Patent No. 23 58 254 should be withdrawn.

### III. West German Patent No. 23 58 254 in view of US 2001/0011061.

In maintaining obviousness of certain claims where treatment with a fluorinating agent is an element, the Examiner has referenced sections [0031]-[0042] in US 2001/0011061 as illustration of instances where a fluorinating agent was used; and has suggested that it would have been obvious to use the fluorinating agent taught in US 2001/0011061 since the method

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therein involved a zinc-chromium catalyst which is similar to the zinc-chromium catalyst composition taught in West German Patent No. 23 58 254.

As noted in Applicants' earlier Amendment, West German Patent No. 23 58 254 suggests use of compositions containing above about 20% by weight zinc. Applicants submit that the catalysts described at sections [0031]-[0042] in US 2001/0011061 are clearly not similar in terms of zinc content (which is 3% by weight, or less).

In addition, Applicants note that section [0001] of US 2001/0011061 clearly indicates that the invention therein relates to a fluorination catalyst and the production and use thereof, and particularly to an improved fluorination catalysts based on chromia, a process for producing the catalyst and a fluorination process using the catalyst. Although "conditioning" with HF is disclosed in the examples, it is used in conjunction with use of the catalyst for fluorination reactions (e.g.,  $\text{CClH}_2\text{CF}_3 + \text{HF} \rightarrow \text{CFH}_2\text{CF}_3 + \text{HCl}$ ). Applicants submit that the fluorination reactions suggested by US 2001/0011061 actually use HF; and that US 2001/0011061 does not teach or fairly suggest that catalysts used for the production of aldehydes or ketones (e.g.,  $\text{CH}_3\text{CH}_2\text{CH}=\text{O}$ ) by the catalytic dehydrogenation of alcohols (e.g.,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ ) should be conditioned with HF. Clearly, German Patent No. 23 58 254 does relate to the production of aldehydes and ketones by the catalytic dehydrogenation of alcohols, and Applicants submit that there is no suggestion therein to use HF for catalyst conditioning or for any other purpose in that type of reaction.

Moreover, as indicated above, no reasonable basis has been identified for concluding that German Patent No. 23 58 254 teaches a composition of Claim 1, wherein inter alia where the  $\text{ZnCr}_2\text{O}_4$  contains between about 10 atom percent and 67 atom percent of the chromium in the composition.

#### IV. UK Patent Application GB2275924.

In maintaining obviousness of certain claims where the fluorine distribution of a halogenated hydrocarbon is changed, or where fluorine is incorporated in a saturated or unsaturated hydrocarbon, the Examiner has referenced use of a chromium-containing catalyst in a process for the production of a fluoroaromatic compound as disclosed in UK Patent Application GB2275924; and has suggested that it would have been obvious to use the fluorination process with the parameters as disclosed by UK Patent Application GB2275924 since the method is a process for the production of a fluoro-aromatic compound which is essentially a fluorination technique akin to the instant claims (i.e., claims 8-14). The Examiner further maintained that Applicants had failed to provide a sharp contrast and the cited prior art references' compositions.

Applicants note that the principal reference cited as disclosing the composition of Claim 1 is West German Patent No. 23 58 254, which disclosed certain catalysts that are useful for the production of aldehydes and ketones by the catalytic dehydrogenation of

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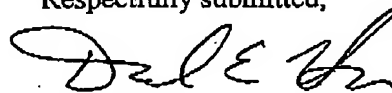
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alcohols. As indicated above, no reasonable basis has been identified for concluding that German Patent No. 23 58 254 teaches a composition of Claim 1, wherein inter alia where the  $\text{ZnCr}_2\text{O}_4$  contains between about 10 atom percent and 67 atom percent of the chromium in the composition. Moreover, as indicated above, Applicants submit that US 2001/0011061 does not teach or fairly suggest that the catalysts of German Patent No. 23 58 254, used for the production of aldehydes or ketones by the catalytic dehydrogenation of alcohols, should be treated with a fluorinating agent. Accordingly, reconsideration of the rejection of claims 8-14 is respectfully requested as processes which involve use of compositions for which all rejections have been addressed.

Applicants again specifically note in connection with the rejection in light of UK Patent Application GB2275924, Claim 10 which involves reaction with  $\text{Cl}_2$  as well as HF, Claim 11 which involves isomerization, Claim 12 which involves disproportionation, Claim 13 which involves dehydrofluorination, and Claim 14 which involves reaction with HCl. Applicants respectfully submit that neither the initial rejection nor the final rejection has provided a reasonable basis for citing UK Patent Application GB2275924 in connection with claims 10 through 14.

In view of the foregoing and Applicants' comments in the earlier Amendment for the above-referenced application, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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